

The embodiments of the invention in which an exclusive property or privilege is claimed are defined as follows:

1. The method of generating a high fidelity service loads comprising the steps of:
  - a). developing a service load history database;
  - b). combining multiple time series models;
  - c). adjusting the change of each of the time series models and creating an accelerated service load model;
  - d). regenerating random vibration load data; and
  - e). feeding the load data to a drive simulation system.
2. The method as recited in claim 1 wherein said step of developing a service load history further comprises modeling original random vibration tests in different time series models.
3. The method as recited in claim 2 wherein said step of adjusting the change in each of the time series models further comprises changing the value of  $\sigma_a^2$ , where

$$f(\omega) = \frac{\Delta \sigma_a^2}{2\pi} \frac{1}{|e^{ni\omega\Delta} - \phi_1 e^{(n-1)i\omega\Delta} - \dots - \phi_n|^2}, -\frac{\pi}{\Delta} \leq \omega \leq \frac{\pi}{\Delta}.$$

4. The method as recited in claim 3 wherein said step of regenerating the random vibration load data is based upon a recursive formula.
5. The method as recited in claim 4 wherein said step of feeding the load data to a drive simulation system further comprises converting a digital signal to an analog signal and transmitting said analog signal to actuators.